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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WEBB, GREGORY E	

ART UNIT	PAPER NUMBER
1751	4

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 09/935,234	Applicant(s) HINEMAN ET AL.	
	Examiner Gregory E. Webb	Art Unit 1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Peri d f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *64-70* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *64-70* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 64-70 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 64-70 recites the broad recitation "about", and the claim also recites "less than" which is the narrower statement of the range/limitation.

4. The use of the phrase "less than about" does not clearly address the boundaries and limits of the range. The term "about" implies values both above and below the point. In direct

contrast, the term "less than" requires the value be below the point. It is unclear to the examiner if the applicant is claiming points above or below this specified value.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 64-70 are rejected under 35 U.S.C. 102(b) as being anticipated by Oles (US 4,145,451).

3. Oles teaches composition containing 0.05-1.8% acetic acid and 0.1-1.5% phosphoric acid.

4. Noting that the instant specification does not indicate that the additional components taught by Oles are to be excluded. Therefore, the additional components taught by Oles are not excluded by the transitional phrase "consisting essentially of."

5. Claims 64-70 are rejected under 35 U.S.C. 102(b) as being anticipated by Baker (US 4,145,451).

6. Baker teaches compositions containing 1-25 vol% phosphoric acid, and 1-10 acetic acid.

7. Noting that the instant specification does not indicate that the additional components taught by Baker are to be excluded. Therefore, the additional components taught by Baker are not excluded by the transitional phrase "consisting essentially of."

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 63-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitachi (JP 77048059) in view of Hwang et al (US 4,681,657).

12. Hitachi teaches compositions containing 75 cc phosphoric acid, 15 cc of acetic acid, and 5 cc of water.

13. Hitachi fails to teach the specific concentrations of phosphoric acid and acetic acid.

14. Although Hitachi fails to teach the exact concentration as required by the instant claim, such modifications of concentration would have been obvious. First, it is well known to dilute metal etching compositions to reduce the rate of etching. Second, in processes where time was not a critical factor, such dilutions would inherently reduce the cost of solution, provide easier disposal, and reduce shipping cost by shipping concentrated solutions and allowing the end user to dilute.

15. In an effort to support the obviousness of diluting etching compositions, the examiner refers to Hwang et al (US 4,681,657) where the following statement is made:

> "Initial attempts to produce a slower resistivity specific etch consisted of diluting the 1:3:8 HNA etch (Dash etch) with acetic acid while maintaining the molecular ratio of the oxidizing agent (HNO.sub.3) to the reducing agent (HF) at a constant value of 1.61 as in Dash etch. Whereas dilution did reduce the etch rate as expected, it also had undesirable side effects. The etchant was too preferential and failed to etch the higher doped polysilicon at the interface between the polysilicon layer and the underlying intrinsic or lightly doped surface. This resulted in a polysilicon residue remaining after etch. Not only was the etching non-uniform, the solutions were plagued by variable incubation periods before the onset of etching. This resulted in variation in the time required to remove polysilicon films of constant thickness. The result of these experiments is summarized in Table I. " (see col. 5)

16. Clearly, a chemist's first attempt at reducing etching rate would be the obvious choice of dilution. Although such dilutions steps occasionally fail, the obviousness of such steps are clearly demonstrated by this paragraph by illustrating the inventors instinctive first reaction to dilute the composition in an effort to reduce the etch rate.

17. Claims 63-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petzow in view of Hwang et al (US 4,681,657).

18. Petzow teaches compositions containing 50% vol. acetic acid and 50% vol. phosphoric acid (see page 96).

19. Petzow fails to teach the specific concentrations of phosphoric acid and acetic acid.

20. Although Petzow fails to teach the exact concentration as required by the instant claim, such modifications of concentration would have been obvious. First, it is well known to dilute metal etching compositions to reduce the rate of etching. Second, in processes where time was not a critical factor, such dilutions would inherently reduce the cost of solution, provide easier disposal, and reduce shipping cost by shipping concentrated solutions and allowing the end user to dilute.

21. In an effort to support the obviousness of diluting etching compositions, the examiner refers to Hwang et al (US 4,681,657) where the following statement is made:

> "Initial attempts to produce a slower resistivity specific etch consisted of diluting the 1:3:8 HNA etch (Dash etch) with acetic acid while maintaining the molecular ratio of the oxidizing agent (HNO.sub.3) to the reducing agent (HF) at a constant value of 1.61 as in Dash etch. Whereas dilution did reduce the etch rate as expected, it also had undesirable side effects. The etchant was too preferential and failed to etch the higher doped polysilicon at the interface between the polysilicon layer and the underlying intrinsic or lightly doped surface. This resulted in a polysilicon residue remaining after etch. Not only was the etching non-uniform, the solutions were plagued by variable incubation periods before the onset of etching. This resulted in variation in the time required to remove polysilicon films of constant thickness. The result of these experiments is summarized in Table I. " (see col. 5)

22. Clearly, a chemist's first attempt at reducing etching rate would be the obvious choice of dilution. Although such dilutions steps occasionally fail, the obviousness of such steps are clearly demonstrated by this paragraph by illustrating the inventors instinctive first reaction to dilute the composition in an effort to reduce the etch rate.

23. Claims 63-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike et al (US 4,256,520) in view of Hwang et al (US 4,681,657).

24. Koike teaches compositions containing approximately 33% phosphoric acid, 41% acetic acid, and 25% water.

25. Koike fails to teach the specific concentrations of phosphoric acid and acetic acid.

26. Although Koike fails to teach the exact concentration as required by the instant claim, such modifications of concentration would have been obvious. First, it is well known to dilute metal etching compositions to reduce the rate of etching. Second, in processes where time was not a critical factor, such dilutions would inherently reduce the cost of solution, provide easier disposal, and reduce shipping cost by shipping concentrated solutions and allowing the end user to dilute.

27. In an effort to support the obviousness of diluting etching compositions, the examiner refers to Hwang et al (US 4,681,657) where the following statement is made:

> "Initial attempts to produce a slower resistivity specific etch consisted of diluting the 1:3:8 HNA etch (Dash etch) with acetic acid while maintaining the molecular ratio of the oxidizing agent (HNO.sub.3) to the reducing agent (HF) at a constant value of 1.61 as in Dash etch. Whereas dilution did reduce the etch rate as expected, it also had undesirable side effects. The etchant was too preferential and failed to etch the higher doped polysilicon at the interface between the polysilicon layer and the underlying intrinsic or lightly doped surface. This resulted in a polysilicon residue remaining after etch. Not only was the etching non-uniform, the solutions were plagued by variable incubation periods before the onset of etching. This resulted in variation in the time required to remove polysilicon films of constant thickness. The result of these experiments is summarized in Table I. " (see col. 5)

28. Clearly, a chemist's first attempt at reducing etching rate would be the obvious choice of dilution. Although such dilutions steps occasionally fail, the obviousness of such steps are

clearly demonstrated by this paragraph by illustrating the inventors instinctive first reaction to dilute the composition in an effort to reduce the etch rate.

29. Claims 63-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al (US 4,256,520) in view of Hwang et al (US 4,681,657).

30. Martin teaches compositions containing 76 vol% phosphoric acid, 3 vol% nitric acid, 15 vol% acetic acid, and 2 vol% ammonium fluoride (see example 9).

31. Martin fails to teach the specific concentrations of phosphoric acid and acetic acid.

32. Although Martin fails to teach the exact concentration as required by the instant claim, such modifications of concentration would have been obvious. First, it is well known to dilute metal etching compositions to reduce the rate of etching. Second, in processes where time was not a critical factor, such dilutions would inherently reduce the cost of solution, provide easier disposal, and reduce shipping cost by shipping concentrated solutions and allowing the end user to dilute.

33. In an effort to support the obviousness of diluting etching compositions, the examiner refers to Hwang et al (US 4,681,657) where the following statement is made:

> "Initial attempts to produce a slower resistivity specific etch consisted of diluting the 1:3:8 HNA etch (Dash etch) with acetic acid while maintaining the molecular ratio of the oxidizing agent (HNO.sub.3) to the reducing agent (HF) at a constant value of 1.61 as in Dash etch. Whereas dilution did reduce the etch rate as expected, it also had undesirable side effects. The etchant was too preferential and failed to etch the higher doped polysilicon at the interface between the polysilicon layer and the underlying intrinsic or lightly doped surface. This resulted in a polysilicon residue remaining after etch. Not only was the etching non-uniform, the solutions were plagued by variable incubation periods before the onset of etching. This resulted in variation in the time required to remove polysilicon films of constant thickness. The result of these experiments is summarized in Table I. " (see col. 5)

34. Clearly, a chemist's first attempt at reducing etching rate would be the obvious choice of dilution. Although such dilutions steps occasionally fail, the obviousness of such steps are clearly demonstrated by this paragraph by illustrating the inventors instinctive first reaction to dilute the composition in an effort to reduce the etch rate.

Double Patenting

35. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

36. Claims 64-70 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. 6,384,001. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims are considerably broad than those claims patented. The main difference is the exclusion of secondary components in the '001 patent by use of the transitional phrase "consisting of."

37. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory E. Webb whose telephone number is 703-305-4945. The examiner can normally be reached on 9:00-17:30 (m-f).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on (703)308-4708. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9310 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

Gregory E. Webb
Examiner
Art Unit 1751

gw
September 12, 2002